

Date: Thu, 10 Jun 93 20:06:34 PDT
From: Info-Hams Mailing List and Newsgroup <info-hams@ucsd.edu>
Errors-To: Info-Hams-Errors@UCSD.Edu
Reply-To: Info-Hams@UCSD.Edu
Precedence: Bulk
Subject: Info-Hams Digest V93 #712
To: Info-Hams

Info-Hams Digest Thu, 10 Jun 93 Volume 93 : Issue 712

Today's Topics:

 Attention: Pilots Who Are Ham Operators
AURORA WARNING: Watch Upgraded to a Warning following Shock Arrival
 Callbook server
 Digital microwave project
 FT-530 mods. Here they are.
 HTX-202 error mode
 Icom W2A charge warning
 RS-12
 SB200 power supply problems - help please.
 Ten-Tec Scout Model 555 - ?
WARNING: Potential Geomagnetic Storm Update - Shock Arrived

Send Replies or notes for publication to: <Info-Hams@UCSD.Edu>
Send subscription requests to: <Info-Hams-REQUEST@UCSD.Edu>
Problems you can't solve otherwise to brian@ucsd.edu.

Archives of past issues of the Info-Hams Digest are available
(by FTP only) from UCSD.Edu in directory "mailarchives/info-hams".

We trust that readers are intelligent enough to realize that all text
herein consists of personal comments and does not represent the official
policies or positions of any party. Your mileage may vary. So there.

Date: Thu, 10 Jun 1993 20:23:57 GMT
From: usc!howland.reston.ans.net!agate!linus!linus.mitre.org!mwvm.mitre.org!
m14494@network.UCSD.EDU
Subject: Attention: Pilots Who Are Ham Operators
To: info-hams@ucsd.edu

Jim Kearman writes:

> ...an experimental "airplane" built by Sir Hiram Maxim,
> father of Hiram Percy Maxim, co-founder of ARRL.
> Fortunately for anyone who lived nearby, the thing never got
> far off the ground. By the way, it used steam power!

True, it never flew. However, in a test during which it was confined to a metal track on the ground, it produced so much lift that it broke loose from the track, and in the process wrecked itself. The steam engine produced lots of power, but the flight control system was practically non-existent, so any attempt to actually fly free of the track was doomed to failure. As you say, lucky for the neighbors it never got that far.

Mike, N4PDY

* These are my opinions only.*

Date: 11 Jun 93 00:22:26 GMT
From: news-mail-gateway@ucsd.edu
Subject: AURORA WARNING: Watch Upgraded to a Warning following Shock Arrival
To: info-hams@ucsd.edu

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MIDDLE LATITUDE AURORAL ACTIVITY WARNING

WATCH UPGRADED: 00:00 UT, 11 JUNE

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VALID UNTIL: 19:00 UTC ON 12 JUNE

HIGH RISK PERIOD: 11 Jun (UT days)
MODERATE RISK PERIOD: 11 Jun - 12 Jun

PREDICTED ACTIVITY INDICES FOR NEXT 3 DAYS: 42, 25, 18, (11 - 13 JUN)
(INPUT INTO THE PREDICTIVE AURORA SOFTWARE *)

POTENTIAL MAGNITUDE OF MIDDLE LATITUDE AURORAL ACTIVITY: MODERATE - HIGH

POTENTIAL DURATION OF THIS ACTIVITY: 24 HOURS.

POTENTIAL LUNAR INTERFERENCE: MODERATE

OVERALL OPPORTUNITY FOR OBSERVATIONS FROM MIDDLE LATITUDES: FAIR - GOOD

APPROXIMATE OPTIMUM OBSERVING CONDITIONS (LOCAL TIME): SUNSET TO 1:30 AM

AURORAL ACTIVITY _MAY_ BE OBSERVED APPROXIMATELY NORTH OF A LINE FROM...

SOUTHERN WASHINGTON STATE TO SOUTHERN IDAHO TO SOUTHERN WYOMING TO NEBRASKA TO ILLINOIS TO NORTHERN INDIANA TO NORTHERN OHIO TO PENNSYLVANIA TO NEW JERSEY AND POSSIBLY PARTS OF DELAWARE. ACTIVITY MAY ALSO BE OBSERVED FROM THE U.K. TO NORTHERN EUROPE INCLUDING THE NORTHERN PARTS OF BELGIUM, THE NETHERLANDS, GERMANY, POLAND AND NORTHERN RUSSIA. SOUTHERN AUSTRALIA AND NEW ZEALAND MAY ALSO BE ABLE TO SPOT ISOLATED PERIODS OF ACTIVITY PRIOR TO MOONRISE.

AURORAL ACTIVITY _SHOULD_ BE OBSERVED APPROXIMATELY NORTH OF A LINE FROM...

SOUTHERN BRITISH COLUMBIA TO MONTANA TO NORTH DAKOTA TO CENTRAL MINNESOTA TO NORTHERN WISCONSIN TO NORTHERN MICHIGAN TO SOUTHERN ONTARIO TO NORTHERN NEW YORK STATE TO PARTS OF NEW HAMPSHIRE TO MAINE. MOST OF NORWAY, SWEDEN, AND FINLAND SHOULD ALSO BE ABLE TO OBSERVE ACTIVITY UNDER DARK SKIES.

* Contact: Oler@Rho.Uleth.CA or COler@Solar.Stanford.Edu for more information regarding the Auroral Activity Prediction and Simulation Software.

SYNOPSIS...

We are upgrading the Middle Latitude Auroral Activity Watch to a Warning. The shock-front from the major flare of 07 June arrived at 17:27 UTC on 10 June. A significant increase in geomagnetic and auroral activity has accompanied the main phase of this storm, which commenced at approximately 20:30 UTC. Expansion of the auroral ovals has been noted with an attendant increase in auroral emission luminosity. This will aid in producing visible aurorae over the middle latitude regions. The disturbance should begin to wane by about 18:00 UTC on 11 June. Conditions should be frequently favorable for observing auroral activity over the middle latitude regions under dark skies.

This warning will remain active until 19:00 UT on 12 June when it will either be updated or allowed to expire.

** End of Warning **

Date: Fri, 11 Jun 1993 01:51:15 GMT
From: swrinde!gatech!howland.reston.ans.net!ux1.cso.uiuc.edu!uchinews!
spssig.spss.com!feenix.metronet.com!marcbg@network.UCSD.EDU
Subject: Callbook server

To: info-hams@ucsd.edu

In article <1993Jun09.230737.3530@n8emr.cmhnet.org> gws@n8emr.cmhnet.org (Gary Sanders) writes:

>In article <C8BxyK.Jt2@feenix.metronet.com> marcbg@feenix.metronet.com (Marc Grant) writes:

>>

>>The callbook server at electra.cs.buffalo.edu is about 1 year out of date.

>> With all the new hams and changes over the past year, it's high time that

>>it should be updated.

>>Now, maybe I'm missing something - is there another way of getting

>>You don't have to send me replies via e-mail, we can keep it on this

>>usenet forum and maybe we'll raise the consciousness level a little.

>

>Marc,

> I think your consciousness needs a little leveling.

Nope, I'm a pretty level fellow.

>Who are you to dictate if/when the callsign server should be updated?

>The folks at buffalo.edu, myself and several others have all offered

>callsign lookups via various direct and indirect methods on the internet.

I am only aware of the "folks at buffalo.edu" and I have corresponded with bowen@cs.buffalo.edu directly. He explained to me the process for updating the server, and the costs involved, and I told him I'd be willing to help in any way I could.

>Might I have your mailing address? Ill drop you an invoice for your

>share of the fees to get the latest database. Depending on how you

>get the database its going to cost the supporting group \$100 and up

>for a twice yearly updated callbook. Since most offer the database

>lookups as a friendly service a note of thanks to the database maintainer

>should be in order instead of this slamming post.

>--

>Gary W. Sanders gws@n8emr.cmhnet.org, 72277,1325

>N8EMR @ N8JYV (ip addr) 44.70.0.1 [Ohio AMPR address coordinator]

>HAM BBS 614-895-2553 (1200/2400/V.32/PEP) Voice: 614-895-2552 (eves/weekends)

Mine was not a slamming post. The sysop at buffalo.edu (I forget his first name) was rather upset that no one was interested in an update to the server. But, he can't do it himself, it costs too much.

I have sent at least three articles over the last six months about the callbook server to ask for help in getting it updated. This is the only one which received any replies.

If there are other ways of getting current callsign data over the net,

then, PLEASE TELL ME ABOUT THEM! That's what my article said (or were you too busy reading what you wanted to read). I asked if there was another way of getting the callsign info off the net. If there is, I'd like to know about it.

I operate several repeaters around the DFW area. I am familiar with users. No matter how arrogant folks are, I never have had the gall to ask them to contribute to our repeaters. They do it out of their own free will.

My friend, if you would like some help in updating callbook server on the net, then why don't you ask? I'm sure you'll receive some replies.

73

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|Marc B. Grant, N5MEI Internet: marcbg@feenix.metronet.com
|P.O. Box 850472 Telephone: 214-231-3998 (voice)
|Richardson, TX 75085-0472 214-231-0025 (fax)

Date: Fri, 11 Jun 1993 02:21:27 GMT
From: swrinde!gatech!usenet.ufl.edu!zeno.fit.edu!zach.fit.edu!
ree88132@network.UCSD.EDU
Subject: Digital microwave project
To: info-hams@ucsd.edu

I am about to embark on a project that involves the use of microwaves to transfer digital data. Not being very experienced in microwave technology I have a few questions to ask the microwave gurus. First, a little background: This project will link two computers together through their serial ports at initially 9600 baud but later at speeds of up to 115K baud. The eventual goal is to use SLIP through this connection to get onto the network. The distance will be approx. 10 to 15 miles.

1. Where is a good place to get cheap microwave components from?
2. What frequencies can be used for this microwave link? HAM?
Are there allocated frequencies for such experimentation and do they require a license?
3. If I want full duplex, do I need 2 antennas at each end or can one serve as a bidirectional with 2 separate frequencies used?
4. Can one antenna be used to transmit AND receive (related to question 3 and 5).
5. Which antenna do I use? Horn? Dish? (related to question 2 about frequency).
6. Has this been done before with personal/amateur setup?

7. Where can I find out more info on this stuff?
8. What security considerations are necessary? I will probably want to encrypt/scramble so eavesdroppers can't get system passwords etc. Is there data encryption on a chip available?
9. Is it feasible to use data compression or correction like v.42 and v.42bis? I have seen it on a chip but have never used it before. Are these chips very expensive? Is there a real easy way to error correct that's cheap?
10. Since I'll be using SLIP at my end I guess the other end can be hooked up to any machine on the network? (ie. a SUN, but what about an IBM PC or Amiga that is not running UNIX?)

I know this sounds really complicated but that's why I want to do this. Plus it can be very useful, but I don't have too many high hopes on getting on the network because of the network administrators security concerns.

Thanks ahead of time for all the wonderful mail I am about to receive :-)

Date: 10 Jun 1993 18:14:56 -0700
From: techbook.com!techbook.com!not-for-mail@uunet.uu.net
Subject: FT-530 mods. Here they are.
To: info-hams@ucsd.edu

This is a compilation of modification information I received in response to my posted query and the info faxed to me by Yaesu.

There are at least 2 board layouts out there.
Note that while the jumper pad numbers have not changed, the board positions of the pads have.

YAESU FT-530

Expanded Receive 110-180, 300-500 MHz
Expanded Transmit 130-180, 400-470 MHz

NOT LEGAL IN U.S.A - FOR EXPORT ONLY (The expanded transmit part)

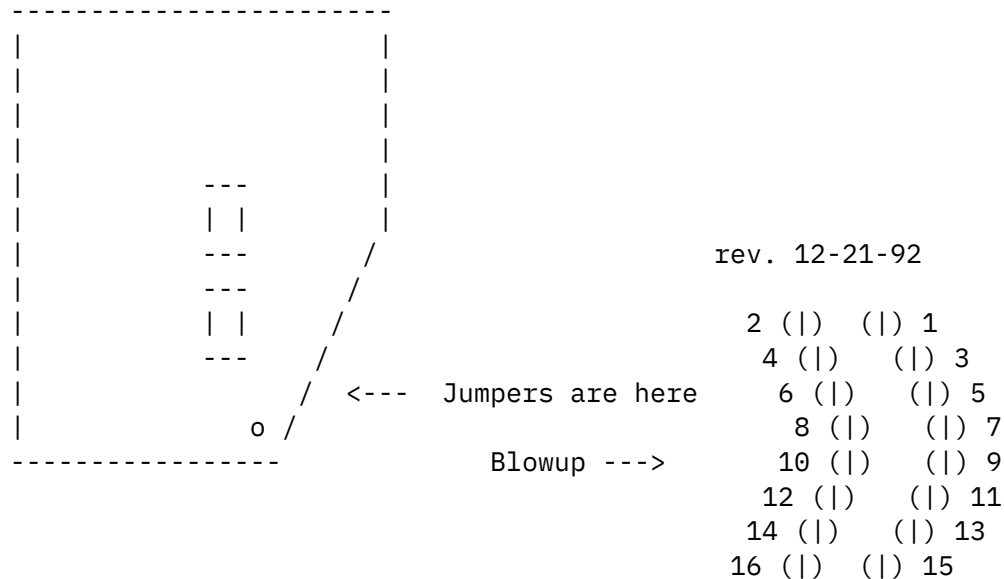
- o Keep that magnifying glass handy! 8-)
- o Be aware that your repeater memories, ect. will be erased. :-(
- o Remove Antenna and Battery.
- o Remove four screws on bottom holding battery track.
- o Remove the four (black) screws holding rear case.
- o Slowly... open the front cover from transceiver and lay both halves on table.

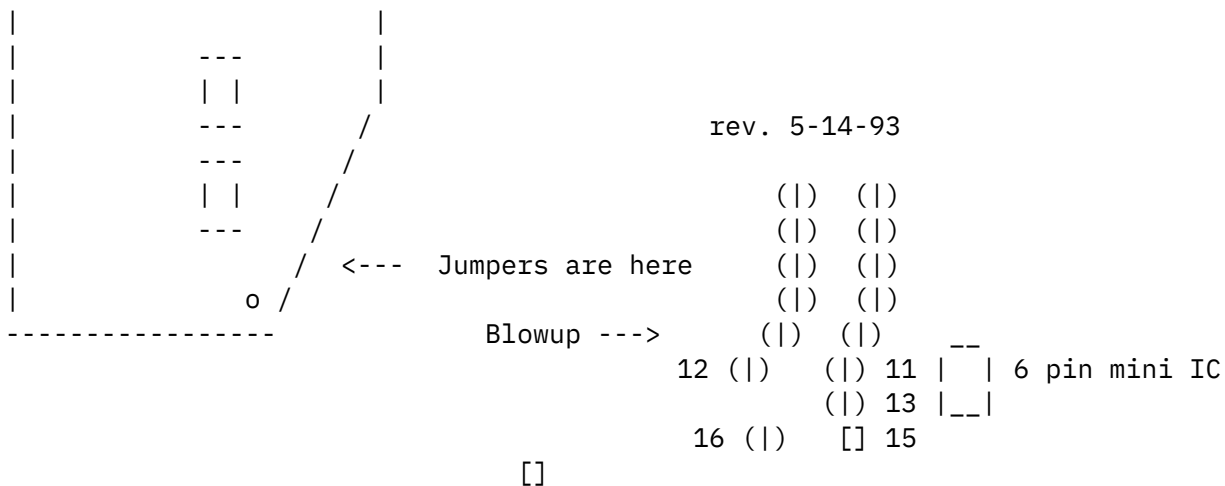
- o Note positioning of white paper insulator in right half of radio and lift out
(don't throw away)

- o Carefully locate Jumper Pad 13 and remove solder.

- o NOTE: If you wish to restrict transmit to the ham band,
Carefully locate Jumper Pad 15 and remove solder.
Otherwise, leave pad 15 in place.

- o Re-install white paper insulator, make sure ground tab slides through the paper insulator.
- o Close radio back up (Careful not to pinch the ribbon cable near lithium battery when closing halves).
- o Re-install the four (black) screws holding rear case.
- o Re-install the four (small silver) screws on bottom holding battery track to radio body.
- o Attach Antenna and Battery.
- o Turn off Radio.... Press and hold both arrow keys while turning on the Radio.
- o Modification Complete.





Pad 15 now a vertical pad with a tiny
"zero ohm" resistor.

My rig got confused after this mod and it was neccessary to reset the CPU. (The 70cm repeater offset register got fouled up and though it could be incremented and decremented by the normal 50khz, it went 0.01mhz, 0.06, 0.11, ect. instead of 0.00mhz, 0.05, 0.10, ect.).

Reset command: turn radio on while holding "MR" and "FM"
(Damn, memories erased again!)

If anyone figures out how to receive higher freqs, say up to 800-950mhz, (so I can listen to the 900mhz ham band of course), 8-) please let me know!

Thanks

Genew@techbook.com

--

Those who beat their swords into plowshares
are destined to plow for those who don't.
genew@techbook.COM

Please direct flames to: genew@ucant.gethere.frmhere

Date: 10 Jun 93 07:39 CDT

From: usc!cs.utexas.edu!wupost!bigboy.sbc.com!news.mtholyoke.edu!news.byu.edu!
news.kei.com!news.oc.com!utacfd.uta.edu!trsvax!trsvax!rpo@network.UCSD.EDU
Subject: HTX-202 error mode
To: info-hams@ucsd.edu

The lithium powers the CPU in standby when the power switch
is turned off, as well as when no power source is connected.
So, strictly speaking, I suppose I should have called it
standby power instead of memory backup.

Paul Opitz, N5TPQ
Radio Shack Publications

Date: 10 JUN 93 21:48:28 CST
From: swrinde!cs.utexas.edu!uwm.edu!MUSIC.LIB.MATC.EDU@network.UCSD.EDU
Subject: Icom W2A charge warning
To: info-hams@ucsd.edu

This is a warning to anyone with an Icom W2A dual band hand held radio,
to not charge the battery with the radio attached, in a drop-in
charger. The radio uses software on/off functions and the battery is
always connected to the electronics of the radio.

The problem is, if the battery reaches thermal cut-off in the charging
cycle, an inductive spike can destroy the radio's regulator and
microprocessors (2). This happened to me, and the symptoms were
simply, the radio didn't turn on!

After \$ 130.00, and two weeks, the radio came back from Icom, only to
fail again a couple of weeks later. Icom fixed it again, for free, and
admonished me to not use a drop-in charger with the radio connected.
I'm passing this along to the group, in hopes of helping someone avoid
a similar disaster!

73, Nels Harvey, WA9JOB

Date: 11 Jun 1993 01:18:12 GMT
From: access.usask.ca!jester.usask.ca!hardie@decwrl.dec.com
Subject: RS-12
To: info-hams@ucsd.edu

Can someone send me (or point me to) operating frequencies for RS-12 please.
I've heard its beacon on 10m but can't find any info on uplink/downlink
frequencies.

Thanks

Pete hardie@herald.usask.ca VE5VA

Date: 10 Jun 93 15:05:11 GMT
From: news-mail-gateway@ucsd.edu
Subject: SB200 power supply problems - help please.
To: info-hams@ucsd.edu

A buddy of mine has a 20 year old SB200 amplifier. He was having some problems with low plate voltage (1800 vs a quote of 2400 in the manual) and sometimes no idling or low idling current. Then it went bang and took out a string of 3 of the caps in one leg of the supply. We found shorted caps - checked the diodes with an electronic ohmmeter and they seemed to still be ok. (diode test mode)

The caps are supposed to be 125uf at 450 volts. We could only find 100uf at 450volts, so we installed them. We figured this would be ok because he runs the amp very lightly loaded - driving it with a 10 watt FT-301 to a peak output of a little over 100 watts normally. Since he doesn't pull near 400-500 ma, we figured being a little light on the caps was better than no caps.

Well the caps got installed, tubes were left out in the interest of keeping things going bang to a minimum, and the supply was fired up. A humming noise, a "ffft-pop" and 4 seconds later the power was shut off by him. Result was 2 caps too hot to touch, and now acting like "not capacitors" and 4 left that still seem to be ok.

Our thoughts are that maybe we didn't test the diodes rigorously enough and that we were dumping AC into the caps and heating them up? I haven't worked on High Voltage in a long time and never really on amps like that so I'm not as familiar as I would like to be. He wonders if having no tubes in there might have let the supply float really high - doesn't seem likely to me since the tube is biased off till PTT anyway (right?) but I'm willing to be educated.

Questions:

1: We figure now to replace all the diodes just in case - anyone know their ratings? They have heath part numbers on them. What's an IN400X equivalent? I'm guessing they should be something like 400 PIV, 1-2 amps - but I'm sure somebody out there has done this before.

2: Anything special we should do to power it up and check it out? Tubes in? Tubes out? I'd kind of favor tubes out and bring it up with a variac to form the caps (which were date coded 1993, so they should be fresh)

3: Should we be suspicious of the remaining caps? Or other parts? The bleeders seemed intact. The caps were new. We thought we had checked the diodes. The transformer is presumably still ok, if not I'm afraid we are probably dead in the water anyway.

4: A good theory for what happened in failures 1 and 2? We figured the caps just got old - maybe there was something else going on.

Any and all wisdom appreciated. Email is fine, but I suspect it'll spark a "boat anchor" celebration thread anyway :-) Besides, other people are probably reworking these things too.

TNX de Kevin - WB2EMS (fkf1@cornell.edu)
"We finally worked the shuttle! 3rd times the charm!"

F. Kevin Feeney
Network Video Engineer
172 Caldwell Hall
Cornell University
Ithaca, NY 14853-2602
Phone - (607) 255-5186
FAX - (607) 255-5771
EMAIL - fkf1@cornell.edu

Date: 11 Jun 93 01:33:32 GMT
From: netnews!panix!panix!not-for-mail@nyu.arpa
Subject: Ten-Tec Scout Model 555 - ?
To: info-hams@ucsd.edu

So I actually took 5 minutes to read my June, 1993 QST last night, and was surprised to see under "New Products" on page 51 a brief paragraph about a new portable HF rig from Ten-Tec.

It looks like it is the rig I've been looking for (QTH is New York city), and depending upon the size, it might be a new addition to my over-the-shoulder bag.

I haven't seen anything about this on the net - does anyone have any ideas or experience with this rig?

73's,
---Steve

nr3b
sgray@panix.com

Date: 11 Jun 93 00:31:08 GMT
From: news-mail-gateway@ucsd.edu
Subject: WARNING: Potential Geomagnetic Storm Update - Shock Arrived
To: info-hams@ucsd.edu

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POTENTIAL MAJOR GEOMAGNETIC STORM WARNING

UPDATED: 00:10 UT, 11 JUNE

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NOTE: A sudden magnetic impulse marked the arrival of the flare shock front at 17:27 UTC on 10 June. A period of minor to major geomagnetic storming has been observed in conjunction with the main phase of this activity, which commenced at approximately 20:30 UTC. Minor to major storming is expected over the next 24 hours. High and polar latitude regions could see periods of severe storm activity. Ionospheric propagation has shown some minor instabilities over the last few hours. Propagation is expected to become degraded over the polar to middle latitude paths, particularly during the local night sectors. Strong fading, multipathing, and absorption can be expected if the intensity of the activity persists. Geomagnetic activity should begin to subside by 18:00 UTC on 11 June.

HIGH RISK PERIOD: 11 June (UT days)
MODERATE RISK PERIOD: 11 Jun - 12 Jun

POTENTIAL LOW-MIDDLE LATITUDE STORM INTENSITY: MINOR - MAJOR
POTENTIAL HIGH LATITUDE STORM INTENSITY: MAJOR

POTENTIAL DURATION OF GEOMAGNETIC STORM: 24 HOURS

POTENTIAL PEAK LOW-MIDDLE LATITUDE K-INDEX VALUES: 6
POTENTIAL PEAK HIGH LATITUDE K-INDEX VALUES: 7

EXPECTED DOMINATING LOW-MIDDLE LATITUDE K-INDEX: 5 - 6
EXPECTED DOMINATING HIGH LATITUDE K-INDEX: 6

POTENTIAL FOR LOW LATITUDE HF DEGRADATION: MODERATE
POTENTIAL SEVERITY OF HF DEGRADATION: MINOR

EXPECTED HF PROPAGATION CONDITIONS: GOOD - OCCASIONALLY FAIR

POTENTIAL FOR MIDDLE LATITUDE HF DEGRADATION: HIGH

POTENTIAL SEVERITY OF HF DEGRADATION: MINOR - MAJOR

EXPECTED HF PROPAGATION CONDITIONS: FAIR - OCCASIONALLY VERY POOR

POTENTIAL FOR HIGH LATITUDE HF DEGRADATION: HIGH

POTENTIAL SEVERITY OF HF DEGRADATION: MINOR - MAJOR

EXPECTED HF PROPAGATION CONDITIONS: POOR TO OCCASIONALLY USELESS

POTENTIAL RISK FOR GEOSYNCHRONOUS MAGNETOPAUSE CROSSINGS: 55% PROBABLE

SUSPECTED SOURCE OF OBSERVED/EXPECTED ACTIVITY:

Major M5.4/2B tenflare with major Types II and IV sweeps on 07 June.

EST. POTENTIAL GEOMAGNETIC IMPACT

SEVERE STORM : 20 %
MAJOR STORM : 40 %
MINOR STORM : 30 %
ACTIVE OR LESS : 10 %

PROBABLE SI ASSOCIATION : OBSERVED

EST. POTENTIAL IONOSPHERIC IMPACT

LOW LATITUDES : MINOR
MIDDLE LATITUDES : MINOR - MAJOR
HIGH LATITUDES : MINOR - MAJOR
POLAR LATITUDES : MINOR - MAJOR

ESTIMATED GLOBAL IMPACT: MINOR-MAJOR

ESTIMATED FORECAST PEAK PLANETARY 24-HOUR A-INDEX DURING STORM: 42

** End of Warning **

Date: Fri, 11 Jun 1993 00:23:37 GMT

From: swrinde!cs.utexas.edu!usc!howland.reston.ans.net!agate!news.ucdavis.edu!

othello.ucdavis.edu!ez006683@network.UCSD.EDU

To: info-hams@ucsd.edu

References <1v4s03\$p2k@tamsun.tamu.edu>, <C8DBps.8st@ucdavis.edu>,
<1v8723INN6f3@crcnis1.unl.edu>

Subject : Re: Blue Language Repeaters

Gary McDuffie Sr (mcduffie@unl.edu) wrote:

: ez006683@othello.ucdavis.edu (Daniel D. Todd) writes:

: <deleted>

: >From all I've seen Gary C.'s opinions on free speech could be considered

: >included in this post as well.

: >Dan

: >--

: Actually, I think Gary's comments should be carved in stone and
: dropped on Washington!

If the stone is made large enough I will be happy to fly out and direct
the dropping ceremony!

Cheers

Dan

--

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*-----*
* Daniel D. Todd      Packet: KC6UUD@WA6RDH.#nocal.ca.usa      *
*                    Internet: DDTODD@ucdavis.edu              *
*                    Snail Mail: 1750 Hanover #102              *
*                    Davis CA 95616                            *
*-----*
*      I do not speak for the University of California....    *
*      and it sure as hell doesn't speak for me!!            *
*-----*
```

Date: Fri, 11 Jun 1993 01:29:32 GMT

From: swrinde!cs.utexas.edu!uwm.edu!ux1.cso.uiuc.edu!uchinews!spssig.spss.com!
feenix.metronet.com!marcbg@network.UCSD.EDU

To: info-hams@ucsd.edu

References <1v2qrr\$q8j@techbook.techbook.com>,

<1993Jun09.185705.25169@microsoft.com>, <1993Jun10.025548.580@kpc.com>.com

Subject : Re: FT-530 HT coverage expansion mods needed

In article <1993Jun10.025548.580@kpc.com> sleat@umbriel.kpc.com (Michael Sleator)
writes:

>In article <1993Jun09.185705.25169@microsoft.com>, frede@microsoft.com (Frederick
Einstein) writes:

>|> ...Shack solder remover (like a soldering iron with a sucker bulb) with great
success. DO NOT

>|> USE DE-SOLDERING WICK!!!!

>

>When issuing pronouncements such as the above, it might help to offer
>some explanation or justification for your apparently strong opinion.

>

>In my experience working on surface-mount boards, I have found that
>solder wick is much preferable to a solder sucker. Why do you suggest
>[hint] not using it?
>

..And, in fact, I spoke last weekend with the Yeasu rep here at Ham-Com in
Dallas, who told me that I should use only solder wick when making the mod.

BUT, since I have a teenie-weenie solder sucker, I happen to prefer it.
--

|Marc B. Grant, N5MEI Internet: marcbg@feenix.metronet.com
|P.O. Box 850472 Telephone: 214-231-3998 (voice)
|Richardson, TX 75085-0472 214-231-0025 (fax)

End of Info-Hams Digest V93 #712
